

520.43783X00

**REMARKS**

Reconsideration and allowance of the above-identified application for at least the reasons given below is respectfully requested.

The invention defined in the pending claims 1-7 is a radio frequency amplifier module. For example, the invention according to base claim 1 is a radio frequency amplifier module comprising a module substrate, a radio frequency power amplifier part which is arranged on the module substrate and amplifies a power of a radio frequency signal, a bias control part which is arranged on the module substrate and controls operation of the radio frequency power amplifier part with a bias voltage, and a bias supply line for supplying the bias voltage from the bias control part to the radio frequency power amplifier part, wherein the bias supply line includes at least one bonding pad having a capacitance component to a ground and a bonding wire formed via the at least one bonding pad. Regarding independent claim 7, it likewise is directed to a radio frequency amplifier module such as that called for in claims 1+ although presented somewhat differently therefrom. That is, according to claim 7, the featured "bias supply line" is set forth as comprising a low pass filter which brings attenuation to a radio frequency signal leaking from the radio frequency power amplifier part to the bias control part.

Regarding the featured invention in claims 1+ and 7, a number of example embodiments directed thereto are disclosed in the present application. Namely, with regard to the example embodiment shown in Figs. 1+, although not limited thereto, reference numerals 103 and 104 relate to the "radio frequency power amplifier part" and the "bias control part", respectively, and reference numerals 108, 109 relate to the set forth "bias supply line". In the example embodiment of

**520.43783X00**

Fig. 1 of the drawings, although not limited thereto, a bias control line is provided for each stage of the two-stage amplifier and is also shown to include a bonding wire 105 formed by a bonding pad 106 having a capacitive component to a ground and a bonding wire assumes an inductance. Regarding the "bias supply line" according to the present invention, which is shown by 108 or 109 in Fig. 1, etc., although not limited thereto, an example equivalent circuit showing thereof as featured in Fig. 3 of the drawings is in the form of a low pass filter. For example, the stitch structure inductance associated with the respective bias control line 108 or 109 of Fig. 1, for example, although not limited thereto, may be constituted by one or more bonding wires 105 and one or more bonding pads 106, the bonding pad having a capacitive component to ground such as described on page 8, line 4 *et seq.* of the present specification.

Consistent with the set forth featured aspects according to independent claim 1 and, also, the corresponding dependent claims thereof as well as with regard to independent claim 7, the radio frequency power amplifier module of the present invention brings about sufficient attenuation to a radio frequency signal in the bias supply line that connects the bias control part and the radio frequency power amplifier part of the module. It is submitted the invention defined in claims 1-7 is a clear patentable improvement over that previously known, including over the art documents cited in the newly formulated rejections.

According to the outstanding Office Action, claims 1-6 stand rejected under 35 USC 102(b) as being anticipated by Miyazawa (U.S. 6,456,125 B1), newly cited; and claim 7 stands rejected on 35 USC 102(b) as being anticipated by Heal et al. (U.S. 5,973,567), also newly cited. As is shown below, the invention defined in claims 1-7 was neither disclosed nor would have been

520.43783X00

suggested by Miyazawa et al. or Heal et al. Therefore, these rejections are traversed and withdrawal of the same is respectfully requested.

Miyazawa discloses a high frequency amplifier having drain bias transmission lines (e.g., 29A, 29B), each having a length of  $\frac{1}{4}$  wavelength ( $\lambda/4$ ), and capacitors (e.g., 30A, 30B) (see the Abstract and Fig. 1 of the drawings). Since the impedance associated with the drain bias transmission lines, according to Miyazawa, is infinite at the frequency  $f_0$  corresponding to wavelength  $\lambda$  (see column 1, line 66, to column 2, line 3), the drain bias transmission lines, in effect, operate as signal blocking lines (see column 6, lines 14-15). It is submitted, however, that the impedance is not infinite when it comes to both a lower frequency and a higher frequency than that of the frequency  $f_0$ . A signal of either the lower or higher frequency is associated with leaks through the drain bias transmission lines (e.g., 29A, 29B), insofar as Miyazawa's high frequency circuit scheme is concerned. Accordingly, it can therefore be said that Miyazawa's drain bias transmission lines operate as band rejection filters.

In contradistinction with Miyazawa's scheme of construction, a characteristic aspect of the present invention is a bias supply line which includes at least one bonding pad having a capacitance component to a ground and a bonding wire formed by the at least one bonding pad which, in effect, constitutes a low pass filter and not a band rejection filter. A characteristic of a low pass filter is that it blocks a signal of a frequency higher than that of the cutoff frequency of the filter. Accordingly, the filter is thereby able to bring about sufficient attenuation to a radio frequency signal (see page 8, lines 17-21, of the present Specification). It is clearly evident that the invention according to independent

520.43783X00

claim 1 and, therefore, also with regard to the corresponding dependent claims thereof is structurally defining over Miyazawa.

Heal, et al. discloses a tunable impedance matching network for a MIC (Microwave Integrated Circuit) power amplifier module. According to Heal, et al.'s construction, there is featured an output impedance matching network 69 located between FETQ1 and the output transmission line 68 (see Fig. 7). The bond wires 76a-p, the bonding pads 70, the bonding wires 71a-p, and the output power combiner 84 form the output impedance matching network. Since the output impedance matching network is not a low pass filter, a radio frequency signal from the amplifier FETQ1 passes through the output impedance matching network in which losses are reduced to the output transmission line (see column 3, line 41, to column 4, line 4).

On the other hand, the "bias supply line" according to the invention set forth in claim 7 is not an impedance matching network like that of Heal, et al., but, rather, is a low pass filter. In this regard, according to present claim 7, the "bias supply line" is defined as comprising:

[a] low pass filter which brings attenuation to a radio frequency signal leaking from said radio frequency power amplifier part to said bias control part.

According to the invention in independent claim 7, the bias supply line is a low pass filter and, also, is not connected to the radio frequency signal output port (RF OUT) but is connected to the bias control part 104 (see Fig. 1+ of the present application). It can be said, therefore, that the radio frequency signal from the radio frequency amplifier part 103 to the bias control part is sufficiently attenuated to be blocked. For at least the above reasons, it can be said, therefore, that the

**520.43783X00**

invention according to claim 7 is structurally defining over Heal, et al. including in both operation and effect.

It is submitted, therefore, that the invention according to claims 1-7 could not have been anticipated in the manner alleged in the outstanding rejections. It is also submitted that the invention could not have been suggested over these references, even if one of ordinary skill would have attempted to apply the teachings of these references in combination.

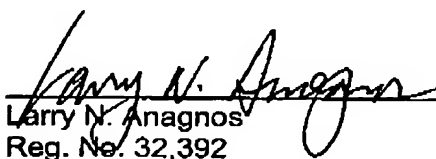
Therefore, reconsideration and withdrawal of the outstanding rejections as well as favorable action on the currently pending claims 1-7 and an early formal notification of allowance of the above-identified application is respectfully requested.

To the extent necessary, applicants petition for an extension of time under 37 CFR §1.136. Please charge any shortage in the fees due in connection with the filing of this paper, to the Deposit Account of Antonelli, Terry, Stout & Kraus, LLP, Dep. Acct. No. 01-2135 (520.43783X00), and please credit any excess fees to such deposit account.

Respectfully submitted,

**ANTONELLI, TERRY, STOUT & KRAUS, LLP**

LNA/mlh

  
Larry N. Anagnos  
Reg. No. 32,392